WHAT IS CLAIMED IS:

1. A purified peptide fragment with selective binding to tumor-derived endothelial cells, wherein the peptide fragment possesses a charge motif of positive- positive- neutral hydrophobic (++0).

2. The purified peptide fragment of Claim 1, wherein the peptide fragment is not greater than fifty amino acid residues in length.

3. The purified peptide fragment of Claim 1, wherein said peptide is operatively attached to a therapeutic agent capable of exerting a cytotoxic effect on a tumor.

4. The purified peptide fragment of Claim 1, formulated as a pharmaceutical composition.

5. The purified peptide fragment of Claim 3, wherein the peptide attached to a therapeutic agent is capable of exerting a cytotoxic effect on tumor vasculature sufficient to lead to tumor necrosis.

6. The purified peptide fragment of Claim 1, wherein said peptide fragment is linked to a diagnostic agent that is detectable upon imaging.

7. A composition useful for targeting tumor-derived endothelial cells, said composition comprising a peptide selected from the group consisting essentially of SEQ ID NO 1 Cys-Gly-Gly-Arg-His-Ser-Gly-Gly-Cys; SEQ ID NO 2 Cys-Gly-Gly-Arg-Lys-Leu-Gly-Gly-Cys; SEQ ID NO 3 Cys-Gly-GlyArg-Arg-Leu-Gly-Gly-Cys; SEQ ID NO 4 Cys-Gly-

Gly-Arg-Arg-Ser-Arg-Gly-Gly-Cys; and SEQ ID NO 5 Cys-Leu-Leu-Arg-Arg-Ser-Arg-Leu-Leu-Cys.

8. The composition of Claim 7, wherein said peptide is capable of being operatively attached to a therapeutic agent that is capable of exerting a cytotoxic effect on tumor vasculature.

9. The composition of Claim 7, wherein said peptide is operatively attached to a therapeutic agent capable of exerting a cytotoxic effect on tumor vasculature.

10. The composition of Claim 7, wherein said peptide is capable of being operatively attached to a therapeutic agent capable of exerting a cytotoxic effect on a tumor.

11. The composition of Claim 7, wherein the therapeutic agent includes at least one agent selected from the group consisting essentially of anticellular agents, chemotherapeutic agents, radioisotopes, and cytotoxins.

12. The composition of Claim 11, wherein the therapeutic agent is an anticellular agent and said anticellular agent comprises a steroid, an antimetabolite, an anthracycline, a vinca alkaloid, an antibiotic, an alkylating agent, or an epipodophyllotoxin.

13. The composition of Claim 11, wherein the therapeutic agent is an anticellular agent and said

anticellular agent comprises a plant-, fungus- or bacteria-derived toxin.

14. The composition of Claim 11, wherein said therapeutic agent is a cytotoxin and said cytotoxin comprises an A chain toxin, a ribosome inactivating protein, gelonin, .alpha.-sarcin, aspergillin, restrictocin, a ribonuclease, diphthia toxin, Pseudomonas exotoxin, a bacterial endotoxin, or the lipid A moiety of a bacterial endotoxin.

15. The composition of Claim 7, formulated as a pharmaceutical composition.

16. The composition of Claim 9, wherein the peptide attached to a therapeutic agent is capable of exerting a cytotoxic effect on tumor vasculature sufficient to lead to tumor necrosis.

17. The purified peptide fragment of Claim 7, wherein said peptide is linked to a diagnostic agent that is detectable upon imaging.

18. The composition of Claim 17, wherein said diagnostic agent is selected from the group consisting of paramagnetic ions, radioactive ions and fluorogenic ions detectable upon imaging.

19. The composition of Claim 18, wherein said diagnostic agent is a paramagnetic ion, and said paramagnetic ion is selected from the group consisting essentially of chromium (III), manganese (II), iron (III), iron (II), cobalt (II), nickel (II), copper (II), neodymium (III), samarium (III), ytterbium (III),

gadolinium (III), vanadium (II), terbium (III), dysprosium (III), holmium (III) and erbium (III).

20. The composition of Claim 18, wherein said diagnostic agent is a radioactive ion, and said radioactive ion is selected from the group consisting essentially of iodine^{123}, technetium^{99m}, indium^{111}, rhenium^{188}, rhenium^{186}, copper^{67}, iodine^{131}, yttrium^{90}, iodine^{125}, astatine^{211}, and gallium^{67}.

21. A method for treating a diseased state in a mammal comprising: administering an effective amount of a peptide fragment with selective binding to tumor-derived endothelial cells, wherein the peptide fragment possesses a charge motif of positive- positive-neutral hydrophobic (++O).

22. The method of Claim 21, wherein the diseased state includes chronic inflammatory diseases.